

AD-A152 167 RESEARCH DEVELOPMENT AND ACQUISITION AMC-TRADOC (ARMY MATERIEL COMMAND-AR. (U) ARMY MATERIEL COMMAND ALEXANDRIA VA 01 NOV 84 AMCP-78-7 TRADOC-P-78-7 1/1

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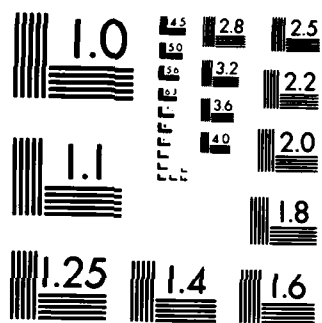
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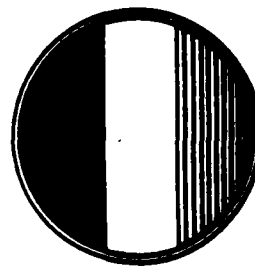
AMC PAMPHLET 70-7  
TRADOC PAMPHLET 70-7

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1984

ACQUISITION

NONDEVELOPMENT ITEM

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# TRADOC

## FOREWORD

Greater reliance on NDI types of acquisition is the wave of the future. We can no longer continue to use the traditional heel-to-toe developmental life cycle management approach to satisfy most of our materiel requirements. It takes too long, and time is money. We can't afford it. Time is also obsolescence and we can't afford that either. Certain technologies are advancing so rapidly that we can find ourselves fielding equipment several technological generations behind what is currently available. Congress won't tolerate that kind of management, and our soldiers shouldn't be asked to look down their sights at a technologically superior threat.

This joint AMC-TRADOC NDI Handbook expands upon policy in the 1984 versions of AR 70-1 and the DARCOM-TRADOC Materiel Acquisition Handbook. It is an NDI guide, offering alternative ways to address the critical functional areas such as Integrated Logistic Support (ILS), Warranties, and Type Classification. This is not a rigid policy document that dictates only one way to conduct an NDI acquisition program. There are as many ways to do NDI as there are development programs. Each NDI acquisition must be tailored to the peculiarities of the requirement, the particular technology or industry involved and the ever-present resource and time constraints. Therefore, this guide should be viewed as a point of departure to develop effective, executable NDI Acquisition Strategies. Also, this handbook does not supplant MSC-level NDI regulations, pamphlets or handbooks tailored to specific commodities. This handbook is intended as a positive force to instruct and inspire the acquisition community, and not inhibit current successful NDI practices.

  
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General, USA  
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Training and Doctrine Command

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AMC Pamphlet  
No. 70-7

1 November 1984

TRADOC Pamphlet  
No. 70-7

RESEARCH, DEVELOPMENT, AND ACQUISITION

AMC-TRADOC  
NONDEVELOPMENT ITEM (NDI) ACQUISITION HANDBOOK

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\*This handbook expands and implements NDI policy as issued in AR 70-1, DARCOM-TRADOC Pam 70-2, and AR 700-127.

## I. INTRODUCTION

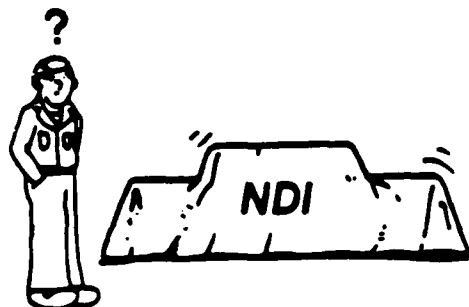
### A. WHAT IS A NONDEVELOPMENT ITEM?

Nondevelopment Item (NDI) is a generic term that covers materiel available from a variety of sources with little or no development effort by the Army. NDIs are normally selected from--

1. Commercial sources (may require ruggedization or militarization).

2. Materiel developed and in use by other US military services or Government agencies.

3. Materiel developed and in use by other countries.



The acquisition alternatives available to satisfy requirements cover a full spectrum from traditional "heel-to-toe" development, to classic "off-the-shelf" NDI. Between the two extremes are "tailored" acquisitions employing varying degrees of NDI. The bottom line is that Army prefers to buy systems already designed, developed, tested, and in production; or, at least, where principal components are in production as opposed to initiating a new development program. Your responsibility is to select the optimum point on this spectrum to successfully satisfy requirements in the shortest time with minimum resources.

### ACQUISITION SPECTRUM

R&D						NDI
FULL DEVELOPMENT PROGRAM	DEVELOPMENT W/STANDARD COMPONENTS	DEVELOPMENT W/STANDARD SUBSYSTEMS	ASSEMBLAGE OF STANDARD SUBSYSTEMS	MILITARIZATION	RUGGEDIZATION	NDI OFF-THE-SHELF OUT-OF-THE CATALOG

This handbook focuses on three general categories of NDI --

\* Category A - Off-the-shelf items to be used in the same environment as commercial use. No research, development, or testing required. A simplified Market Investigation\* is required.

\* Category B - Off-the-shelf items to be used in a military environment substantially different than the commercial environment.

\* Market Investigation is new term for Market Survey. The concept itself is not changed. "Market Survey" is still used in AR 70-1 and DARCOM-TRADOC PAM 70-2. These documents will be updated to new terminology at next opportunity.

° Category C - A new system assembled from components (commercial market/other services/foreign). In addition, system may require some hardware/software development and integration.

°° Category C1 - All components exist.

°° Category C2 - Most components exist; some components developed by R&D.

## B. NDI BENEFITS AND CHALLENGES

### 1. NDI offers three major benefits--

a. Time to fielding is greatly reduced. Quick response to user needs is provided.

b. Research & development (R&D) costs are lower when systems' design, development, and testing are minimized.

c. Currently available state-of-the-art technology is used to satisfy the user need.

### 2. NDI also presents certain challenges--

a. The user may have to relax some of his requirements to accommodate use of components in production.

b. Essential ILS activities normally accomplished in preproduction phases have to be accelerated, and may require increased up-front funding. The standard Army logistics system may be supplemented by interim contractor support or other innovative logistic strategies, but the impact upon operations in a combat environment must be considered.

c. Proliferation of hardware and software may result, which will cause logistics support, training and configuration management problems, as well as higher life-cycle costs.

d. Safety deficiencies normally not acceptable in Army hardware may have to be considered as an acceptable risk, or may have to be controlled by procedural safeguards instead of being designed out of the system.

e. The current BOIP/DAMPL/BOI/TOE authorization process must be expedited because of the shorter NDI acquisition cycle.

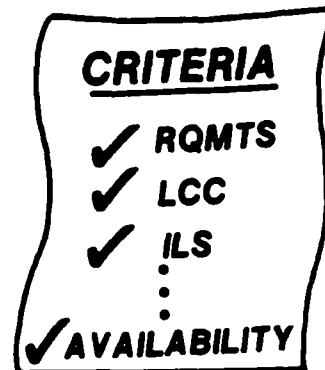
## C. CRITERIA FOR SELECTING NDI

1. NDI must satisfy the user's materiel requirement. Army Materiel Command (AMC), as the materiel developer, enters into a cooperative partnership relationship with US Army Training and Doctrine Command (TRADOC), as the user representative, in an iterative requirements generation process.

2. Life-cycle cost (LCC). For NDI, Army expects to field a product faster and cheaper by possibly compromising some performance characteristics, and perhaps accepting longer contractor support in training and logistics areas. We must evaluate total life-cycle cost for NDI alternatives, consider risk and cost trade-offs, and then select the alternative that has the lowest projected life-cycle cost, acceptable risks, and meets minimum user requirements.

3. Operation and support in mission environment. NDI presents special ILS problems because the very efficiency of the NDI Acquisition Strategy may outstrip the standard Army ILS process. To deal with this, Army can choose to rely on contractor support either on an interim or permanent basis.

4. Availability of the product and its support items for purchase throughout the life cycle buy. The Market Investigation must assess manufacturer history, production capability, and ability to sustain support over intended life cycle of product. We may choose a one-time "life of type" buy of spares to ensure support of the product over the entire life cycle.



5. Safety. NDI presents special safety problems due to the lack of testing, use in environment for which it is not designed, and lack of compliance with normally accepted Army safety standards. In cases where Army standards are not met, a decision must be made whether or not the increased risk is acceptable.

6. MANPRINT. Manpower and Personnel Integration. MANPRINT is the imposition of human factors, manpower, personnel, and training considerations on the entire materiel acquisition process. NDI is not exempt from MANPRINT. In fact, NDI requires extra MANPRINT effort. In early Concept Exploration/Market Investigation activities, MANPRINT is a major contributor in determining whether an NDI can be fielded by Army in a strict commercial or off-the-shelf configuration; whether a degree of modification is required; or whether there's no viable NDI solution at all. NDI's advantages are manifest, but they can't overcome the basic requirement to acquire equipment that can be fielded with minimum qualitative and quantitative impact on the Army personnel inventory and training base. See Paragraph IVC6 for further details on MANPRINT.

7. Nuclear, biological, and chemical (NBC) survivability requirements. If an item is electrical or electronic in nature, these requirements are very critical in making a decision to buy NDI.

a. Survivability of electrical items requires protection against high and low electromagnetic pulse (EMP) damage. This applies to all items, even those in depot reserve, since EMP has such far-reaching effects. Additionally, if radiation hardness is specified, it must be included in the initial development of circuit boards-- to attempt to modify these boards later generally requires a total redesign of the board and possibly the entire system.



b. From an NBC survivability standpoint, if the material composition of an item is not durable to the effects of either contaminants or decontaminating agents, or, if the item is not operable by soldiers wearing individual NBC protective gear, the equipment may not be suitable for use on the battlefield.

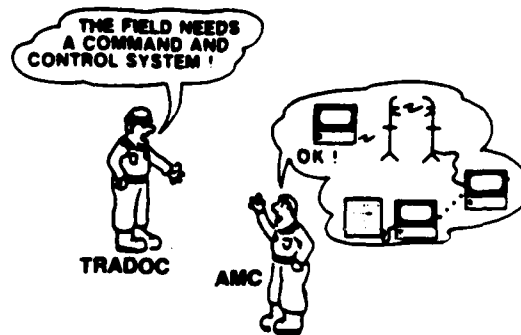
Note: Abbreviations used in this pamphlet are explained in the glossary.

## II. AMC AND TRADOC IN NDI

NDI acquisition requires considerable interaction between AMC and TRADOC. From the onset, a number of plans and actions are key to the NDI process.

### A. AMC ROLE

AMC, as materiel developer, is responsible for selecting, procuring, fielding, and sustaining a system. For NDI acquisitions, AMC provides TRADOC with Market Investigation data to evaluate effectiveness and suitability of NDI, and refine materiel requirements. The user conducts an iterative process comparing the requirement to the products available in the commercial market. From this comparison, the user may accept trade-offs allowing an NDI solution. The ultimate goal of the iterative requirement review is approved requirements documents which (1) satisfy the user's requirements and (2) provide sufficient flexibility for solicitation of NDIs to satisfy the requirement. After the decision is made to use NDI to satisfy the user's requirement, AMC develops the Acquisition Strategy and provides the followthrough to place the product into the user's hands. Throughout the acquisition cycle, AMC works closely with TRADOC and the test community ensuring that the NDI satisfies user requirement and is supportable in the field.



### B. AMC NDI RESPONSIBILITIES

1. Assists TRADOC in preparation of requirements documents.
2. Performs Market Investigation of NDI alternatives.
3. Develops and manages ILS (including MANPRINT) for the NDI.
4. Provides procurement, cost, and specification data for the solicitation.
5. Recommends the NDI candidate which best meets user requirements for selection and type classification.
6. Prepares Basis of Issue Plan Feeder Data (BOIPFD) and Qualitative and Quantitative Personnel Requirements Information (QQPRI).
7. Assures optimum safety of the NDI.
8. Acquires, fields, and supports the NDI.

9. Determines need for an independent evaluator for each NDI acquisition program and, if needed, assigns to TECOM or AMSAA. (HQ AMC)

10. Prepares an independent evaluation plan (IEP), conducts an independent evaluation, and presents an independent evaluation report (IER) at each milestone decision review.

#### C. TRADOC ROLE

TRADOC, as combat developer, formulates concepts, doctrine, organization, materiel objectives, and requirements for employment of Army forces. During the materiel acquisition cycle, TRADOC represents the soldier in the field and is responsible for preparing requirements documents. TRADOC ensures requirements documents are not overly restrictive and contain only minimum essential user requirements. TRADOC must work closely with AMC in developing requirements documents, obtaining Market Investigation data, comparing that data with requirements, and refining requirements. TRADOC in coordination with AMC develops the issues (e.g., cost, schedule, performance, other) which must be answered by the Market Investigation and if subsequent testing is required, the critical operational test issues.

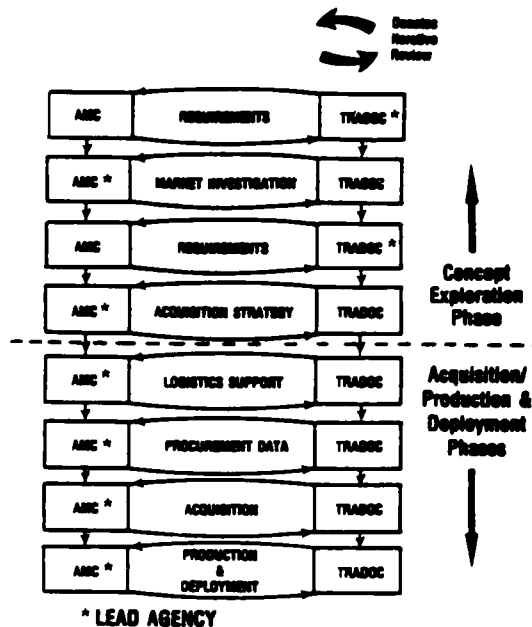
#### D. TRADOC NDI RESPONSIBILITIES

1. Prepares requirements documents in coordination with AMC. TRADOC initially develops the Operational and Organizational (O&O) Plan and, through the iterative cycle with AMC, generates appropriate requirements document (ROC, LR, TDR, TDLR, CTDR) to support NDI acquisition.

2. Conducts premilestone I evaluations and tests when needed to define requirement.

3. When designated operational tester and evaluator, establishes test and evaluation issues and criteria, and participates in Market Investigation.

4. When designated the operational tester and evaluator, conducts operational independent evaluation and presents an IER at in-process reviews (IPR).



5. Participates in selection of NDI.

6. Assesses and contributes to the ILS planning and evaluation, MANPRINT, procurement data, selection, procurement and production/deployment of the NDI. This includes stating minimum level of Government support package required at initial fielding, and intended usage life of product.

7. Develops and staffs the BOIP and QQPRI.

### III. OVERVIEW OF NDI ACQUISITION PROCESS

An overview of the NDI acquisition process is described on the following pages. A flow chart of the process is provided at figure III-1. Paragraph numbers in the following discussion are keyed to the flow chart.

#### CONCEPT EXPLORATION PHASE

1. The NDI acquisition process starts like any other program with establishment of a materiel requirement by TRADOC in the form of an O&O Plan.

2. NDI feasibility surfaces during the normal requirements generation process. TRADOC establishes those operational requirements representing essential user needs. AMC assesses technical feasibility. Integral to this assessment is a preliminary determination that NDI is, or is not, a viable option.

3. Prior to the Milestone I decision, both development (TECOM or AMSAA) and operational (TRADOC or OTEA) independent evaluators prepare IEPs for the Market Investigation which address issues, identify data requirements/sources, state the approach for independent evaluation, specify the analytical plan, and identify program constraints. In those cases where the independent evaluators determine an IEP is not required, rationale is provided to the materiel developer. The materiel developer conducts a Market Investigation in coordination with testers, combat developer, and logistician. Policy for conducting a Market Investigation is at paragraph IV A and AR 70-1. Using all available data (e.g., prior test information, prior experience, the Market Investigation, MANPRINT activities, Mission Area Analysis, O&O Plan, and performance characteristics of the approved requirement), the evaluators prepare IERs for presentation to the decision review. These IERs provide a basis for determining if a commercially available system can fill the need, and the extent of and justification for any further testing required. NDI's goal is no testing, unless absolutely necessary. All NDI testing must be rigorously justified. IERs are provided to the Milestone I review and Test Integration Working Group (TIWG) members. Based on the Market Investigation, the availability of a candidate/proposed NDI system should guide the final requirements document. This is the beginning of the TRADOC-AMC partnership to identify acceptable trade-offs which encourage the NDI alternative.

4. If the results of the Market Investigation indicate an NDI solution is feasible, AMC initiates development of an NDI Acquisition Strategy. NDI Acquisition Strategy options include proceeding directly to a Milestone III production decision or a Full Scale Development (FSD) Phase to conduct RDTE test and evaluation of potential NDI to validate if they satisfy the requirement. To a large part, the Acquisition Strategy is driven by the particular NDI category. (See para 1A) The extent of modification is a factor in deciding whether RDTE and Operational Testing is necessary, and how much.

5. The NDI decision is made at the Milestone I decision review. Essential elements in preparation for the review are--

a. A Systems Concept Paper (SCP) containing a comprehensive Acquisition Strategy, identifying NDI category and establishing the baseline for all supporting functional areas (AMC). (See AR 70-1 for SCP and Acquisition Strategy policy and format.)

b. Requirements document (ROC, LR, TDR, TDLR, CTDR)(TRADOC in coordination with AMC). (See AR 71-9.)

c. User's statement of minimum level of Government logistics support including ADP software support required at initial fielding.

d. BOIPFD/QQPRI (AMC), BOIP, and staffing of QQPRI for submission with requirements document (TRADOC). (See AR 71-2.)

e. An initial ILS Plan (AMC). (See AR 700-127.)

f. Transportability approval (MTMC). (See AR 70-44.)

g. NDI test and evaluation strategy. For NDI, the goal is "no testing." This can be achieved by maximum use of existing data sources (commercial testing, user data, independent evaluation agencies). The materiel developer establishes the TIWG to develop the Test and Evaluation Master Plan (TEMP) (See DODD 5000.3 for format) and T&E portions of the Acquisition Strategy, request for proposal (RFP), and other supporting documentation. TIWG's early involvement optimizes the use of existing test data (e.g., commercial/user data, Technical Feasibility Testing, Component Testing) to satisfy subsequent testing requirements and contribute to the test portions of the Acquisition Strategy. The TEMP and Acquisition Strategy are approved at Milestone I.

h. Preparation of Safety and Health Data Sheet (See AR 70-61, AR 385-16).

i. Product Quality Management (PQM) Plan (AMC). (See DARCOM-R 702-6, app A.)

j. Training plans (AMC and TRADOC). (See AR 350-35.)

6. The Program Decision Authority conducts a Milestone I Review with the above documents, to get approval to pursue an NDI acquisition. With full concurrence of voting IPR members, a System Acquisition Decision Memorandum, prepared by the decision authority, authorizes execution of the Acquisition Strategy in the SCP. The level of decision authority is determined by the type of program (See AR 70-1 for decision authority criteria). The decision review--

a. Determines capability of marketplace to provide an item for the military.

b. Approves NDI Acquisition Strategy which includes designation of NDI category (A, B, C1, C2).

c. Approves issues and subsequent testing via TEMP approval.

ACQUISITION DOCUMENTATION PHASE (when called for by the Acquisition Strategy)

7. Once an NDI solution is authorized, AMC prepares an Acquisition Plan to support contracting efforts. There are many contracting options available. The Acquisition Plan outlines and justifies the selected option. A generalized approach to contracting strategy is described below. Additionally, the Integrated Logistic Support Plan (ILSP) is updated with consideration for special factors relating to the approved accelerated acquisition program, and transportability approval is reaffirmed.

8. When the Acquisition Plan and ILSP are approved, AMC, in conjunction with TRADOC, prepares a formal specification or Functional Purchase Description for the solicitation. This document describes military requirements.

9. At this point, AMC conducts a final review (Milestone III) prior to the release of the solicitation package to ensure all is in order. The Milestone III decision--

° Approves the Acquisition Strategy to support Production and Deployment Phase.

° Approves and type classifies the system (see a & b below).

If approved, the decision authority issues a System Acquisition Decision Memorandum revalidating the Acquisition Strategy and releasing the solicitation for purchase. Type Classification (TC) is an integral part of the Milestone III IPR. NDI items can be type classified in two ways--

a. If the item's make and model number are known (normally in a non-competitive procurement situation) the item can be definitively Type Classified Standard by the IPR authority at Milestone III.

b. If the item's make and model number are not precisely known, the item can be generically Type Classified Standard if the item's configuration is firmly established prior to solicitation, based on the system performance specification or functional purchase description. TC is then definitized after source selection when the manufacturer's make and model number are known.

A HQDA-approved BOIP/QQPRI is required for TC. If generic TC is used, AMC must provide updated BOIP feeder data and QQPRI to TRADOC as soon as system and

components are defined so manpower, training, budget, and organization documents considerations can be reassessed.

10. The solicitation package is issued by AMC, consistent with existing FAR, DOD FAR supplements, and other regulatory guidance.

a. The solicitation package normally provides the following:

(1) Functional specification requirements including: performance, ILS, range of operation, desired physical properties, transportability, protection from corrosion/other forms of material deterioration, health, MANPRINT, and safety requirements (including safety assessment report and Material Safety Sheets for hazardous materials) for the operation/maintenance of the NDI within the intended military environment.

(2) Schedule of required availability of prime product and ILS deliverables such as data, manuals, and spare parts, and projected usage life cycle of product.

(3) Desired maintenance considerations from unit-to-depot levels.

(4) Requirement for warranties.

(5) TRADOC-approved test and evaluation issues and criteria.

(6) First Article Test and Quality Conformance Requirements that relate to the performance and durability of the NDI.

(7) Evaluation criteria to be used in source selection.

(8) Contractual terms and conditions, including appropriate data rights clauses.

(9) Mobilization requirements and availability in the United States in times of National emergencies.

(10) Requirement for interim contractor support, transition from contractor to field support, or life-cycle contractor support.

b. The solicitation package normally requests the bidder to provide--

(1) Description of growth potential for Preplanned Product Improvement (P<sup>3</sup>I).

(2) Warranty data to include acquisition costs, provisions, exclusions and warranty reporting/tracking.

(3) Description of support equipment and TMDE recommended by bidder.

(4) Description and samples of commercial user documentation, training manuals, training materials, maintenance manuals, and availability of contractor training.



(5) Description of testing done by contractor on system, including test procedures followed, test data, and results achieved.

(6) Contractor price schedule to establish initial and projected life-cycle costs, including costs of data rights of the item.

(7) List of current users of the product (if any).

(8) Statement on availability of components and spares over intended Army life cycle (may lead to "life of type" buy to ensure support).

11. Contractor proposals will be evaluated using prespecified evaluation criteria IAW the FAR. Lowest bid price may not necessarily be the ultimate criterion for selection. Contracts will not be awarded to contractors with a history of providing unsatisfactory supplies or services. (See DOD FAR Suppl.)

12. Contract award goes to the contractor who best satisfies the entire requirement. At this time the TC will be definitized if it had been limited to generic at Milestone III.

#### PRODUCTION AND DEPLOYMENT PHASE

13. AMC planners establish hardware availability date based upon both production lead time agreed to with the selected contractor and the minimum essential support requirement.

14. During this interim period new equipment training commences and may be performed by the contractor.

15. The Materiel Fielding Plan (MFP) is finalized and the materiel fielding agreement completed jointly by AMC and the ultimate user. ILS strategy reflected in the MFP varies with the particular NDI, and is provided to the end item, the Line Replaceable Unit, or the piece-part level. Materiel release will be accomplished IAW DARCOM-R 700-34.

16. Fielding.

a. AMC and/or the contractor conducts first article testing IAW AR 702-9.

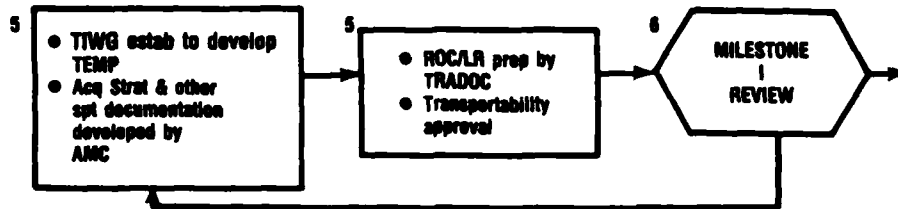
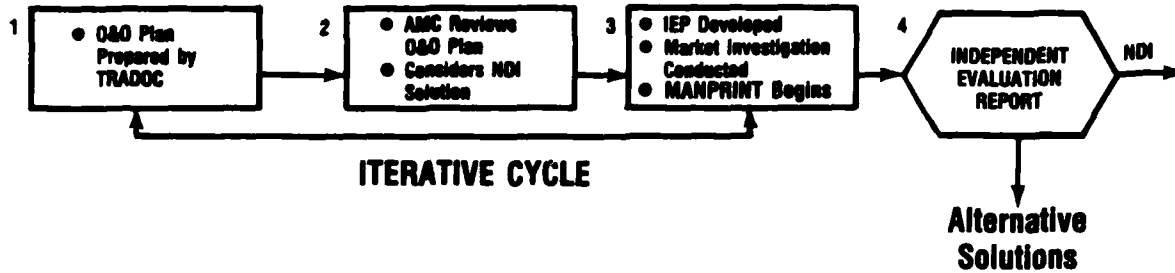
b. The First Unit Equipped (with whole unit replacement) is based on having the end item and minimal level of required Government support concurrently available. IOC is reached when the initial MTOE unit and supporting elements attain the capability to operate and maintain a production item or system.

c. The operational tester and evaluator conduct follow-on evaluation as directed by the Milestone I/III decision review.

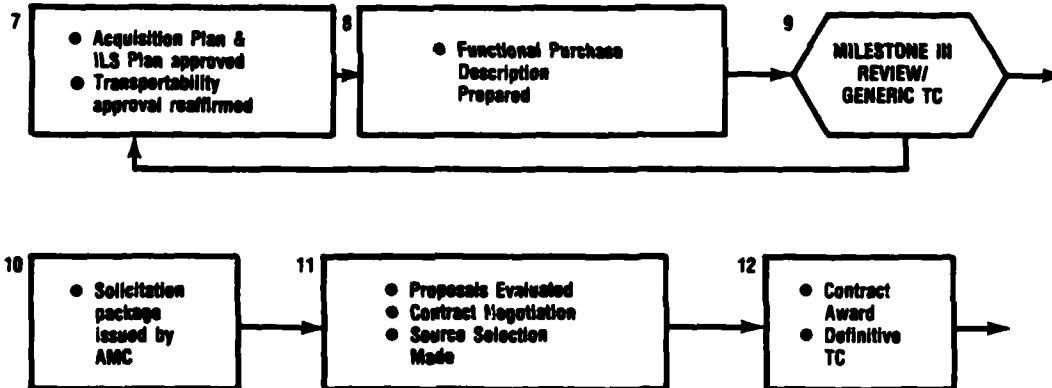
Note: The process depicted in paragraph III shows two milestones. In some cases, only one milestone may be required. If a program can be clearly demonstrated as low risk with minimum logistics requirements, it may be possible to prepare a solicitation package as part of the Market Investigation. In that case, Milestone I approves the NDI Acquisition Strategy, authorizes competitive procurement, and issues generic TC. Definitive TC and completion of any other necessary planning can be validated through the Materiel Release process (See DARCOM-R 700-34). Three examples of tailored NDI acquisitions are shown at appendix A.

# OVERVIEW OF NDI ACQUISITION PROCESS

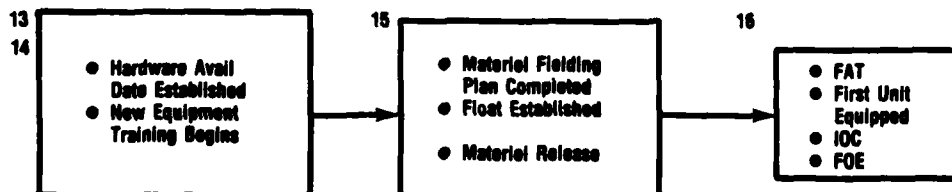
## CONCEPT EXPLORATION PHASE



## ACQUISITION DOCUMENTATION PHASE



## PRODUCTION & DEPLOYMENT PHASE



#### IV. SPECIAL NDI ACQUISITION CONCERNS

Now that you have seen how we want to acquire NDI, let's look at some of the things which make NDI acquisitions different from standard military developments . . .

##### A. MARKET INVESTIGATION

The Market Investigation is a central activity for NDI acquisition. The materiel developer must know the market and keep abreast of not only the technology but contractors who can be relied upon to provide quality, supportable products. It is equally important to keep industry apprised of factors being evaluated during Market Investigations; this allows industry to organize data and provide information which can be quickly assessed by the Government. A completed comprehensive Market Investigation is a powerful tool for both AMC and TRADOC. AMC uses Market Investigations to find NDIs which can potentially satisfy user requirements. It is imperative that useful, complete, and high quality data be gathered to support the decision process. TRADOC uses Market Investigation data to determine if user requirements are potentially capable of being satisfied by NDI acquisition. TRADOC also gains valuable insight into the direction in which technology is moving, thus aiding in developing future requirements. The independent evaluator will participate in Market Investigations and assist in the assessment of test and evaluation issues and criteria.

1. Keep Abreast of Technology. AMC and TRADOC keep abreast of technology through--

- a. Current literature, industry briefings, and scientific meetings.
- b. United States and Foreign Military Information Exchange.
- c. Industry IR&D reports and presentations.
- d. Evaluation of industry prototypes at Government test sites.

2. Evaluate Requirements Documents Against Industry Capabilities. The Market Investigation searches for products which satisfy user requirements. In addition to satisfying technical requirements, some other NDI considerations are listed below:

a. Are there one or more NDI products that satisfy a user's need? If none is suitable off-the-shelf, can one be modified or will a new development be required?

b. Are available products efficiently transportable via highway, marine craft, railroad, and aircraft in their operational configurations?

c. Are there suitable products available in sufficient quantities to meet Government requirements without unique or separate production runs?



d. Are there support systems, including parts and backup capability, that satisfy Government needs for the life of the system? If not, may lead to "life of type" buy to support the product.

e. What is the extent of competition?

f. Are commercial standards and warranties adequate to protect Government's interests?

g. Are commercial training, operating, and maintenance manuals available and adequate?

h. Do companies making the NDI have good product quality history?

i. Is vendor willing to demonstrate item at a Government location?

j. Does the NDI incorporate accepted human factors engineering features?

k. Are commercial configuration management controls adequate?

l. Does the NDI meet Army safety, health, and environmental requirements?

m. Is the NDI disposal technique feasible?

Answers to these questions aid in determining which NDI is best for the Government's application.

### 3. Conduct of the Market Investigation.

a. Market Investigations may vary from informal telephone inquiries to comprehensive industry-wide reviews. Maximum use should be made of available data (contractor sources, user experiences, independent test and certification agencies).

b. Market Investigations are normally conducted in two steps--

(1) First, a general survey of the market place to determine the nature of available products and number of potential contractors. Based on this preliminary determination, the developer decides--

(a) Is there sufficient information to make the NDI decision, yes or no?

(b) If not, what additional information is needed to support a sound NDI decision? This information is gathered in the second phase.

(2) Second, collection of sufficient data to--

(a) Make a definitive NDI decision.

(b) Prepare appropriate requirements documents (ROC/LR/TDR/CTDR).

(c) Develop solicitation documents responsive to the requirements.

The second stage may include purchasing and leasing equipment to conduct operational/combat suitability tests and to help build the functional purchase description. This testing will not be used to competitively select or eliminate any particular contractor or product.

4. Creation of Procurement Documents. The results of the Market Investigation, Acquisition Strategy, and ILS Plan are used to develop solicitation and procurement documents. Specifications within procurement documents are written to be satisfied by the NDIs evaluated but must not be written around any particular manufacturer's product. One way to preclude the appearance or actuality of overspecifying to one manufacturer's benefit, is to make draft specifications available to industry for comment. Market Investigation results may also prompt changes to requirements documents, in some cases relaxing or eliminating restrictive requirements or standards.

## B. PROCUREMENT

The key to NDI is the procurement of a total package, including spares and support.

1. Solicitation Considerations. The solicitation package for NDI procurement will require specific information from the contractor regarding his product--

a. A description of the performance, supportability characteristics, range of operation, physical properties, and environmental behavior of the bidder's system and components.

b. Supporting evidence of contractor's testing, including test results test data, and conditions.

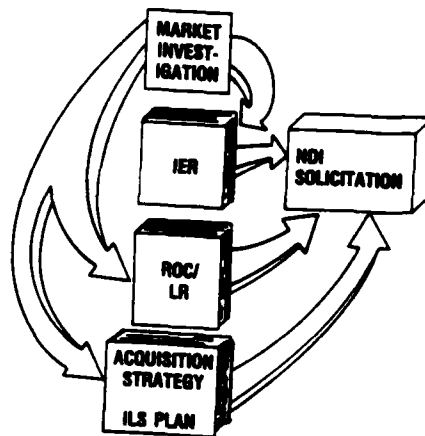
c. Acceptance test plans for the system and its components.

d. Pricing information for all repair items and consumables required to support the end item, including support and test equipment. Identification of all current sources of each repair item with justification (e.g., reliability, price) for any preferential selection of sources.

e. Plans for providing form, fit, and function while maintaining a reasonable flow of performance and maintenance improvements.

f. Plans to assure availability of product, components and spares over the intended Army life cycle. May opt for "life of type" buy to support product.

g. Plans which assure availability of the product from United States sources, to support mobilization requirements.



h. Identification of military specifications and equivalent standards that are met by proposed system. Contractors should identify those specifications required by the system specification that are not satisfied and provide justification for the difference.

i. Description of data, documentation, manuals, and training materials to be furnished. This includes proposals and pricing data for contractor furnished training on a continuing basis, and assisting the Army in establishing a training base.

i. Identification of items of Army standard support equipment which may be substituted for supplies normally furnished as equivalent equipment.

j. Identification of proprietary items/data.

k. Past quality history data on the product, e.g., acceptance test records, customer complaints, warranty claims, scrap, repair, and rework data.

l. Identification of the types of skills and quantities of personnel required to operate, maintain, and repair this item when employed in a military environment. (MANPRINT)

m. Identification of safety and health requirements necessary to meet Army's needs and certification that the product meets Army safety requirements listed in the solicitation.

2. Evaluation Criteria. A key factor in preparation of proposals is a firm and complete understanding of the evaluation criteria. Evaluation criteria for NDI will be expressly stated in the solicitation package, and will be developed from the following guidelines:

a. A physical demonstration of the system's characteristics and support, using the manufacturer's hardware and specifications as set forth in the proposal, may be required.

b. Demonstrated system must show compliance with--

(1) Functional areas of the operational requirement.

(2) Bidders system performance specifications as submitted with the proposal.

c. Evaluation of offers submitted by bidders determines the best value to the Government. Bidder's past quality history will be a key evaluation criteria in making this determination (See DOD FAR Suppl).

3. Procurement Alternatives. The procurement strategy, alternatives, and methods of procurement are determined by the contracting officer based on the NDI program's objectives, conditions, and constraints. Procurement strategy and alternatives include competition vs. sole source, and second sourcing techniques to introduce competition. Methods of procurement include formal advertisement (IFB) and negotiations (RFP/RFQ).

4. Warranties/Guarantees. Warranties are required by statute for all weapon systems and their components. Three major concerns are--

a. Contractor warranties are used in NDI procurements to foster quality product performance and to reduce testing. If the product has good warranties and the Market Investigation shows the contractor honors the warranty, then testing may be reduced or eliminated. Unless contractual provisions are provided, the Government will not have failure data, provisioning demand data, or maintenance experience data required for transition to organic support. Interoperability considerations must be addressed within the warranties where applicable. If a system has to be compatible with other systems then the contractor must keep it that way. In addition, the Army must determine what to do after warranties expire.

b. Guarantees serve to relax the Government's configuration management. The Government has some assurance that the NDI will be available for intended life cycle of the requirement if the contractor provides sufficient guarantee of form, fit, and function. However, assemblies replaced through form, fit, and function interchange could compromise established logistics support (e.g., repair parts, manuals, training).

c. Current congressional language (PL 98-212, DOD FY84 Appropriations Act, Sec 794, 8 Dec 83) requires contractors to provide guarantees with all weapon systems delivered to DOD. DOD policy guidance for implementation of their statutory guaranty requirement is published in 14 Mar 84 DEPSECDEF Memo, subject: Guaranty Policy Guidance.

5. Small Business Considerations. The Government encourages participation of small business in meeting military requirements; we want to extend this approach to NDI acquisitions. To accomplish this--

a. Ensure solicitations do not place unnecessary burdens on small businesses.

b. Identify NDI particularly suitable for small business.

c. Carefully evaluate a small business' capability to meet contractual ILS requirements and support the NDI for its intended life cycle.

d. New congressional language (PL 98-212, DOD FY84 Appropriations Act, Sec 779, 8 Dec 83) prohibits prequalification of small business firms in any way, including commercial acceptability, as a prerequisite for participation in procurement of commercial-type items. Still, the Army may require bidders to demonstrate their ability to produce and support desired procurement quantities. Any proponent of an NDI acquisition must be aware of these issues and the potential risks they pose. The AMC Competition Advocate can provide proper guidance.



6. Off-shore procurement. Use of NDI procured from outside the United States presents challenges--

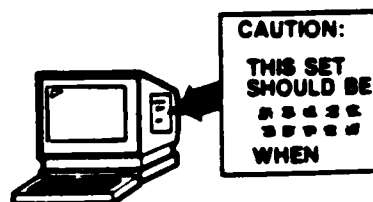
a. Manuals may need translation and subsequent conversion to Army TMs.

b. "Buy-Out" provisions may be required to satisfy mobilization requirements.

c. Contractor support cannot be expected to the degree provided by United States sources.

d. Data rights may not be obtainable.

e. Safety and health characteristics may be below normally accepted United States standards.



7. Reprocurement Data Rights. For NDI, the Government decides whether or not to acquire data rights for the item or system. To facilitate this decision, the Government requests contractors to identify all proprietary components/parts including those of subcontractors. On one hand, current thinking is to purchase NDI so form, fit, and function of the product are guaranteed to the Line Replaceable Unit (LRU) level. Thus, the Government avoids the expense of purchasing reprocurement data rights, but must rely on the vendor to provide repair parts throughout the life of the NDI. On the other hand, the Government desires to avoid the potential high cost of life cycle sole-source suppliers. Where practicable, a reprocurement data package should be contracted for, as part of the NDI acquisition effort, to reduce Government risk and enhance competition. NDI contracts must address the Government's ability to break out and competitively procure NDI/spare parts whenever possible.

AMC spare parts breakout criteria are used in considering these options in a breakeven analysis. Generally, when competitive repair parts procurement represents a 25 percent cost savings over sole-source procurement, data rights are purchased. While the discussions above deal primarily with hardware, similar issues exist for ADP software. These issues need to be considered and resolved through appropriate analyses. AMC has an ongoing effort to further refine and improve policy in this area.

8. Contract Provisions. This handbook does not supplant existing laws and regulations governing the contracting process. In the event of a conflict between handbook language and those laws and regulations that govern the contracting process, the latter prevails.

### C. INTEGRATED LOGISTIC SUPPORT (ILS)

ILS is often the most difficult aspect of NDI acquisition. It demands day-to-day top management attention, both by the Government and contractor; it cannot and must not be sacrificed to hardware schedule and cost constraints. If it is agreed that some ILS elements must play catch-up, a work around plan is developed to provide the best level of logistics support possible until the ILS process provides the requisite support. A successful ILS process can only be achieved through the joint effort and commitment of AMC, TRADOC, and the contractor. This mandates that an ILS Plan (ILSP) be developed by AMC and TRADOC concurrently with the Acquisition Strategy. The AMC-TRADOC partnership conveys both the importance of ILS and specific requirements to the contractor through solicitation and contract packages. The ILSP should be coordinated with other acquisition participants, and formation of an ILS Management Team should be considered. The ILSP must precisely document--

- ° Overall ILS requirements.
- ° The initial support package that will be available during and after fielding, based on minimum requirements set by TRADOC.
- ° How we will achieve that initial support capability.
- ° How we will transition to desired Army support within a reasonable time period.
- ° Requirements and detailed plans for each function and element of ILS using information obtained from the Market Investigation.

1. Design Influence. During the Market Investigation and Acquisition Documentation Phase the design characteristics are evaluated in terms of supportability issues, costs, and compatibility with support equipment, and are included in source selection criteria, thus serving the intent of design influence.

2. Logistic Support Analysis (LSA)/LSA Record (LSAR). LSA is an integral part of the Market Investigation. It is used in determining initial and life cycle support concepts, and projecting potential support problems and solutions. It also details ILS element requirements via the LSAR. The LSAR is tailored to provide phased delivery of data required to determine interim and subsequent support resource requirements. LSA/LSAR deliverables should be requested to provide timely completion of ILS schedules.

3. ILS Resources. Overall ILS resources are identified and provided. Where necessary, additional ILS resources are provided to expedite both Government (AMC/TRADOC) and contractor ILS efforts.

4. Supportability Test and Evaluation. If commercial market place testing does not address the intended military environment and equivalent information cannot be obtained from existing sources, Military Suitability/Technical Feasibility Test and Evaluation may be required to determine or verify maintenance skill requirements, training requirements, transportability issues, and the use of standard support and test equipment. Independent evaluation results will be provided to the materiel and combat developers.

5. Maintenance Planning. The initial maintenance concept generally accepted for most NDIs is to provide the using unit with the capability for fault isolation to the LRU, either through the use of Built-In-Test-Equipment (BITE) or the use of TMDE test procedures. The maintenance personnel in the unit then remove the LRU and replace it with a working element and evacuate faulty LRUs to the intermediate DS facility. Intermediate DS facilities stock LRUs for direct exchange purposes. Note that both using units and intermediate DS levels are manned by military operators and maintenance personnel. Items not repaired by the intermediate DS level are shipped to intermediate GS or further to depot, which may be manned by military, civilian and/or contractor personnel. Depots usually have the capability to repair to the piece-part level. Criteria and subsequent maintenance concepts must be identified. Transition plans are formulated when required.



6. MANPRINT. MANPRINT activities begin in Concept Exploration. Unlike new developments, NDI limits MANPRINT options because we're starting with a proven, defined end product or component. Because of these limits, early Concept Exploration activities must focus on identifying MANPRINT issues and developing accommodations or "work arounds." MANPRINT activities will predict system demands on future personnel inventory and whether there are unsupported requirements (quantity, mental category, task loading, MOS, training burden). Where there are shortfalls, trade off determinations are necessary--

- ° For strictly off-the-shelf items, MANPRINT determines if the standard NDI configuration meets minimum Manpower-Personnel-Training (MPT) criteria. If it does not, this leads to a reevaluation of the basic NDI decision, and other variations of NDI.

- ° If we're pursuing a modified NDI strategy, then MANPRINT findings might be compensated by simple system design modifications.

- a. MANPRINT Methodology: Several models are available to work MANPRINT. HARDMAN is an analytical tool which predicts quantitative demands on soldiers; i.e., number, MOS, mental category. From that data, recruiting and retention impacts, if any, can be extrapolated. On the qualitative side of the equation, use Early Comparability Analysis (ECA) to sort out cognitive aspects as measured against tasks envisioned for soldier operators and maintainers. Your ECA should highlight which tasks are "high drivers" and whether mastery of a "high driver" requires inordinate training. Once "high drivers" are identified, subject them to task and learning analysis which assesses the cumulative effect of all tasks - both sequential and simultaneous tasks - to forecast whether that future pool of soldiers is up to the task in mental and physical dexterity. Tie together all these functions with system design and ergonomic considerations through trade off and sensitivity analyses.

b. MANPRINT Team: The materiel developer or PM is ultimately responsible for putting the MANPRINT on each system, but it takes a team of functional experts to do it--

(1) ILS Manager: MANPRINT is an ILS function and the ILS Manager or POC is your focal point. The ILS Manager works closely with the user or TRADOC System Manager during Concept Exploration activities (e.g. Market Investigation, IEP, IER).

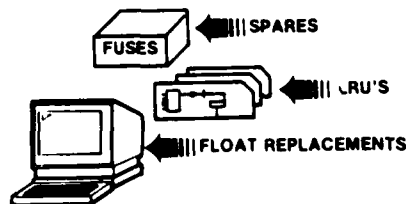
(2) User Representative (TRADOC System Manager or other TRADOC POC): TRADOC has full responsibility to do HARDMAN and ECA during Concept Exploration.

(3) Human Engineering Laboratory (HEL): Look to HEL for expert advice on MANPRINT issues. HEL does Human Factors Engineering Analyses (HFEA) in each acquisition phase as a system check to see that all the MANPRINT issues are being properly resolved. Require the first HFEA in Concept Exploration to provide an early forecast of the level of MANPRINT required for your system.

(4) Contractors: Industry must deliver products that will compensate for the finite capabilities of soldiers and the training base. For NDI, it's a problem of letting industry know clearly what MANPRINT needs and constraints are in the IFB/RFP/RFQ. Boiler plate language for contractual instruments is under development. Work closely with HQ, AMC Deputy Chief of Staff for Procurement and Production (AMCOP) to ensure your contractual instruments are substantively and legally sufficient. Also, ensure the Source Selection Board has a MANPRINT voting member - someone who is conversant in the field and provides the Board with the proper criteria to evaluate industry's responses.

(5) Testers: For NDI, all testing should be minimized. However, MANPRINT data is still required. Develop a TEMP with special emphasis on gathering MANPRINT data, preferably from existing sources (contractors, other users, consumer agencies, independent private sector test activities). If testing is needed, work MANPRINT test issues and criteria with the test community so that proper issues are identified and they are testable. Make sure testing is accurate and, most importantly, treat MANPRINT failures as system failures! Resolve through IER process.

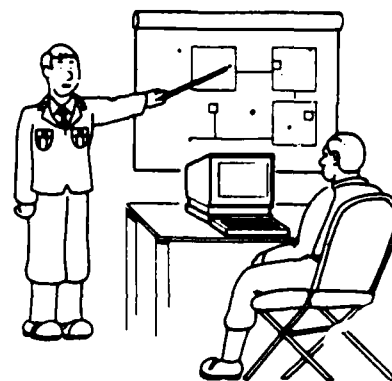
7. Supply Support. The provisioning strategy follows the maintenance strategy. Actions required to establish interim support are expedited. Phased delivery of LSAR data is used. Normally, intensive management is used to provide for maintenance float and ASL/PLL for the interim support concept. Pre-screening of manufacturer's part numbers for national stock numbers (NSN) is accomplished as necessary. NSN must be assigned to all spare/repair parts anticipated to require replacement in the field. NSN assignment must be completed and LSA data required to compute ASL/PLLs loaded to Commodity Command



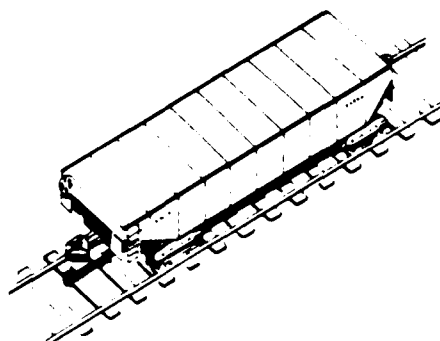
Standard System (CCSS) Provisioning Master Record (PMR) not later than 240 days prior to FUED. Provisions must be made to collect demand history from interim contractor support periods and warranty programs. This information should be provided to the Government to update provisioning data in preparation for organic supply support. If we cannot be assured of availability of spares/components over intended army life cycle, Army may choose to execute "life of type" buy -- one time procurement of spares/components to support intended life.

8. Support and Equipment. Requirements for test equipment and Associated Support Items of Equipment (ASIOE) must be identified as early as possible and included in the BOIPFD/QQPRI and BOIP. Use of Government standard test equipment in lieu of contractor-recommended unique test equipment must be determined early. AMC should expedite and closely monitor the use of data interchange to provide an initial interface of ASIOE requirements.

9. Training and Training Devices. Overall training requirements have to be determined on an expedited basis. Equipment and personnel requirements are identified in the BOIP/QQPRI. Extensive contractor assistance may be required for initial new equipment training and establishing the institutional training base. These requirements are determined jointly by AMC and TRADOC in close coordination with intended users. If training aids or devices are required, use of contractor-owned or contractor-provided equipment may be necessary. Special needs of the TRADOC school or user will be identified and met where possible. Expedited delivery of initial production items to the TRADOC school will often be required. This is a MANPRINT element.

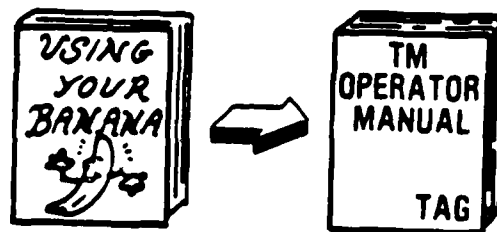


10. Transportability. Prior to completion of the solicitation package, minimum requirements for transportation within the Defense Transportation System (DTS), handling, tie-down and packaging for both overseas and intratheater movement are determined. Commercial standards are used to the extent they satisfy military requirements; however, any required modifications should be included in the solicitation package. Where necessary, Government transportability experts participate in precontract award negotiations. The high cost of post-production modification must be avoided.



11. Technical Data. The NDI approach generally requires TRADOC and the user employ validated/verified and authenticated commercial manuals for initial fielding. Acceptability of commercial manuals for interim and life-cycle use should have significant weight in the Market Investigation and source selection

due to the high cost of developing military manuals. TRADOC assists AMC in determining commercial manual acceptability. Acceptable commercial manuals are authenticated and distributed by The Adjutant General Office (TAGO), with necessary supplements for maintenance allocation, repair parts, transportability, and support equipment identification. Where, due to the nature of the NDI, commercial manuals are not acceptable, interim procedures for provision of essential technical manuals will be developed. Close coordination with TAGO should be maintained.



Note: In addition to manuals, technical data include drawings, test data, etc., which should not be procured beyond detail required (i.e., form, fit, and function).

#### D. TEST AND PRODUCT ASSURANCE

An important advantage of NDI alternatives is reduced acquisition time. This is accomplished, in part, by minimizing Government testing on NDI. General guidance is - - we will not test when existing data (contractor or other sources) provides us reasonable answers. It is imperative that independent evaluators get involved early, participate in the NDI program, and provide IEP and IERs.

1. Testing Prior to Milestone I Decision. Government testing should be limited to that absolutely necessary to obtain data necessary to make the NDI decision.

- a. As an initial step, the Government will minimize testing by--
  - (1) Obtaining and assessing contractor test results.
  - (2) Obtaining usage data from other customers.
  - (3) Observing contractor testing at his facilities.
  - (4) Obtaining test results from independent test organizations, e.g., Underwriter's Laboratory.
- b. If, based on this initial data collection, it's decided that more information is needed to make a sound NDI decision, the Market Investigation may enter into an evaluation phase. NDI candidates may be bought or leased, and short user evaluation tests (including logistics support) conducted in the

operational/combat environment. Safety procedures IAW AR 385-16 must be followed prior to conducting user testing. The results will--

(1) Directly support the Acquisition Strategy to accept or reject the NDI alternative.

(2) Influence preparation of requirements documents (ROC/LR/TDR/CTDR).

(3) Assist in preparation of solicitation documents.

The test results will not be used to select a specific contractor or product.

2. Post Milestone I Testing. All testing after the Milestone I NDI decision must be described and justified in the SCP and TEMP, and specifically approved by the Milestone Decision Authority. Again, "no testing" is the goal when it makes sense.

a. DT - No DT will be conducted unless the materiel developer identifies specific information needs that cannot be satisfied by contractor or other test data sources. The Army will not demand test data in rigid formats, but will be flexible in accepting data that answers the essential questions.

b. OT - NDI does not automatically mean no OT. OT will be waived when the materiel developer demonstrates that Market Investigation data satisfies the user in their determination of military acceptability. This determination must be included in Milestone I documentation (SCP and TEMP) and approved by the Milestone Decision Authority.

c. Testing by NDI Category (See para 1A). Testing requirements will be tailored to each specific system. The following testing guidance by NDI category are not rigid requirements, but rather general characterizations of testing activities appropriate to each NDI category. The goal of minimum testing still remains regardless of NDI category.

(1) Category A - No testing prior to FAT (inspection/system demonstration or normal FAT) except if contract awarded to contractor who has not previously produced an acceptable finished product and the item is assessed as high risk. In that case, preproduction testing should be required.

(2) Category B - Feasibility testing required in military environment. Require preproduction testing if feasibility testing results in fixes to item. FAT required. Limited user tests may be desired during feasibility/preproduction tests.

(3) Category C - Feasibility testing required in military environment. Preproduction testing of complete system required. Hardware/ADP software integration tests required. User testing required. FAT required.

d. Follow-on Evaluation - Testing of the NDI after the first unit is equipped, is oriented to validate and refine the logistics support, training,

and provisioning strategy. These tests can materially aid the logisticians in supporting the NDI throughout its life cycle.

### 3. Reliability and Maintainability (R&M) Requirement.

a. Categories A and B. R&M requirements are not developed for these types of NDI which are produced in large quantities in the commercial market and widely used by the public. In some cases, the user may conduct feasibility/suitability tests during the Market Investigation if it is determined that the military environment is substantially different from the commercial environment. Procurement specifications may incorporate changes required to ruggedize/militarize/upgrade specific components identified during the feasibility/suitability tests.

b. Category C. A reliability program will be considered for end items assembled from commercially available components if it is determined that the integration process constitutes a high-risk effort. The reliability program facilitates component selection and reliability management. A reliability program plan will be developed (See AR 702-3 and MIL-STD-785) and will address reliability objectives, testing (qualification, environmental stress screening, production reliability, acceptance, etc.), reliability growth, assessment requirements, and acceptance criteria. All qualification, stress screening, and reliability requirements and compliance criteria must be identified and placed in the specification. The requirements placed in the contract will be tailored for each integrated system. The final reliability effort can range from translating the operational availability requirements into a specification requirement and requiring a reliability demonstration when assembled, to having a reliability effort similar to a development program. Naturally, risks must be traded off against cost and benefits to arrive at the lowest level R&M effort consistent with user's need and the parameters of an accelerated program.

### 4. Other Test Considerations.

a. Quality Assurance Provisions. A quality assurance provision must be specified for each functional and physical requirement in the contract.

b. Product Quality Management (PQM). A PQM plan will be developed and implemented for each NDI IAW DARCOM-R 702-6 and DARCOM-P 702-13.

c. System Safety Requirements. Essential safety characteristics specified in the requirements document will be used as the minimum safety elements during the Market Investigation process. Safety verification (testing) of the hardware may be necessary to validate acceptability of the system in the military environment as defined in the O&O Plan.

## E. RESOURCES

1. Funding. Overall funding of NDI is governed by comprehensive provisions contained in AR 37-100-FY and AMC Supplement 1 thereto.



This section outlines the appropriate funding sources to be used for NDI acquisition throughout the acquisition cycle. A schematic chart of the NDI funding cycle is included at figure IV-1.

a. Concept Exploration Phase. Currently, all activities integral to the Concept Exploration Phase are financed by the end item developer with RDTE resources. These activities, which exclude operational testing, range from formulating specific materiel requirements documents (e.g., O&O Plan) and extend to the Milestone I Review, including NDI Type Classification. A more complete listing of these activities is provided in the schematic chart at figure IV-1 below. Operational testing will be funded by the organization responsible to conduct the testing.

b. Acquisition Documentation/Production and Deployment Phases. Upon approval and type classification, NDI-acquired "off-the-shelf" quantities needed to meet National inventory or operations/usage requirement (i.e., quantity procurement) are funded by current end item manager as described below.

(1) Quantity procurement of investment-type end items (i.e., items usually costing \$3000 or more) acquired from off-the-shelf or manufacture, are financed via--

(a) The applicable procurement appropriation (PA) hardware line if intended for use by OMA mission activities which are not part of the industrial base.

(b) Normally, by the PA Production Base Support (PBS) Program, if intended for use by Government-owned, Contractor-operated (GOCO) activities or non-RDTE Army Industrial Fund (AIF) users who are excluded from participation in the Asset Capitalization Program (ACP). Type classified tools and equipment needed by a GOCO/AIF facility for the exclusive support of investment type NDI entering the operational inventory for the first time may be financed by the same production hardware line used to procure the NDI.

(c) The RDTE appropriation, if intended for use by RDTE carrier installations.

(d) The Industrial Fund Asset Capitalization Program (ACP), if intended for use by industrial funded activities operating under the ACP.

(2) Quantity procurement of expense-type end items, (i.e., items costing less than \$3000 which are not designated as investment-type end items) are initially financed by the stock fund for subsequent sale to operational users.

(3) Production Engineering. Should it become necessary following type classification standard to accomplish any production engineering (PE) effort having a direct impact on the technical data/production data package of the NDI

which does not involve any reconfiguration thereof, such effort is funded by the current end item manager as follows:

(a) PE-directed to any portion of an investment-type end item that is currently in production is funded by the current end item manager using the same PE hardware line that is financing purchase of the end item. If the end item is out of production, the current end item manager uses OMA 738017.000Q1/Q2 funds to finance such effort.

(b) PE-directed to an expense-type end item in or out of production will be funded by the current end item manager using OMA 728012.1200 or .1900 funds as applicable.

(4) Reconfiguration. Following type classification standard, should it become necessary to reconfigure (i.e., product improve) an NDI in any manner, such effort is accomplished and funded by the current end item manager using RDTE, PA, OMA, or the Stock Fund, as described in AR 70-15.

2. PPBES. Programing and budgeting for NDI pose special problems. Because of the brevity of the NDI acquisition process, the standard PPBES leadtimes and funding "windows" may restrict the opportunities for rapid procurement and fielding. This can be minimized through careful advanced planning and, in the case of urgent requirements, reprograming techniques.

CONCEPT EXPLORATION PHASE	ACQUISITION DOCUMENTATION PHASE	PRODUCTION & DEPLOYMENT PHASE	POST PRODUCTION
<p><u>BEGINS:</u> Preparation of O&amp;O Plan (TRADOC)</p> <p><u>ENDS:</u> Milestone I Review. Final decision that NDI can/cannot satisfy requirements.</p>	<p><u>BEGINS:</u> Milestone I Approval of Acquisition Strategy</p> <p><u>ENDS:</u> First Unit Equipped</p>	<p><u>BEGINS:</u> Hardware Availability Date Established</p> <p><u>ENDS:</u> First Unit Equipped</p>	<p><u>BEGINS:</u> Initial Product Run Ends</p> <p><u>ENDS:</u> Materiel Requirements declared Cancelled or Obsolete.</p>
<p>RDTE \$ FINANCES ALL ACTIVITIES LISTED BELOW</p> <ol style="list-style-type: none"> <li>1. Formulating requirements document</li> <li>2. Drafting program management documents</li> <li>3. Preparing independent evaluation plan</li> <li>4. Conducting user/Market Investigation</li> <li>5. Preparing purchase description; technical data package, including operators/maintenance manuals; DMWRS; new equipment training plan and other ILS requirements.</li> <li>6. Preparing TMDE plan; materiel fielding plan; prototype test program sets; training aids, etc.</li> <li>7. Purchase/lease of sufficient NDI candidates required to conduct test/evaluation of same and cost associated with the test/evaluation, such as - -               <ol style="list-style-type: none"> <li>a. Modification of NDI</li> <li>b. Purchase of specifications; manufacturers publications; repair parts; special tools/equipment required for test/evaluation</li> <li>c. Transport of NDI to/from test site</li> <li>d. Training/salaries/TDY of test personnel</li> <li>e. Maintenance and restoration of leased items for return to vendor.</li> <li>f. Replacement of leased items which cannot be economically restored for return to vendor</li> </ol> </li> </ol>			
<ol style="list-style-type: none"> <li>1. QUANTITY PROCUREMENT               <ol style="list-style-type: none"> <li>a. Investment-type end items                   <ol style="list-style-type: none"> <li>(1) PA Hardware line \$ - for use by OMA mission users</li> <li>(2) PA PBS PIP \$ - for use by AIF users not under ACP</li> <li>(3) RDTE \$ - for use by RDTE activities</li> <li>(4) AIF \$ - for use by AIF users operating under ACP</li> </ol> </li> <li>b. Expense type end items</li> </ol> </li> <li>2. PRODUCTION ENGINEERING PROJECT               <p>End item is In-Production</p> <ol style="list-style-type: none"> <li>a. Investment End Item - PA Hardware Line \$</li> <li>b. Expense End Item - OMA 7S \$</li> </ol> </li> <li>3. PRODUCT IMPROVEMENT PROJECT - FIRST PHASE               <ol style="list-style-type: none"> <li>a. Developmental PIP ← RDTE \$</li> <li>b. Non-Developmental PIP                   <p>In-Production</p> <ol style="list-style-type: none"> <li>Investment-type End Item - PA Hardware Line \$</li> <li>Expense-type End Item - OMA 7S \$</li> </ol> </li> </ol> </li> </ol>			
<p>End item is out of Production</p> <ul style="list-style-type: none"> <li>- Investment-type End Item</li> <li>- OMA 7S \$</li> <li>- Expense-type End Item</li> <li>- OMA 7S \$</li> </ul> <p>Out-of-production Investment-type End Item</p> <ul style="list-style-type: none"> <li>- OMA 7S \$</li> <li>Expense-type End Item</li> <li>- OMA 7S \$</li> </ul>			

Figure IV-I. NDI FUNDING CYCLE

## Appendix A

### EXAMPLES OF NDI TAILORED ACQUISITION STRATEGIES

The following are examples of how the NDI acquisition process described in paragraph III can be tailored to fit various NDI solutions to materiel requirements. Three examples are provided--

1. Example I NDI. This is a category A NDI (See para IA) which is a procurement to replace an item currently in the inventory, i.e., it does not introduce a new capability, but rather replaces one or more currently fielded items. These types of systems represent equipment readily available in the commercial market with expected military use equivalent to commercial use. A typical example of this NDI is administrative vehicles. The following characteristics apply to this example.

- a. The NDI decision is predetermined.
- b. Time from Milestone I till beginning of production is about 6 months.
- c. A short production lead time is envisioned (2 to 6 mos).
- d. Since no new capability is inserted, no new requirements document is needed.
- e. No change to type classification is required as long as only the National stock number (NSN) and model number are changed. If the generic nomenclature, line item number (LIN), or standard study number are changed, type classification is required.
- f. BOIP is not required unless equipment rebuy requires a new LIN for management, new associated support items of equipment (ASIOE), or has a personnel impact (plus or minus) that must be updated in TOE. A QQPRI is always processed on equipment for rebuy to validate training and manpower impacts.
- g. The Market Investigation only updates current information on commercial products; it is not a full-scale investigation. Testing need only be conducted if essential data are otherwise not available. This testing should fill those gaps which have not been satisfied by the Market Investigation or other data sources.
- h. Funds are allocated in advance for the procurement of the NDI.
- i. First Unit Equipped is 12-15 months, with transition to desired Government support in 18 months.

j. The Materiel Fielding Letter (MFL) updates MFP and MFA if they exist or satisfies the requirement if they don't.

k. Product Assurance Requirements.

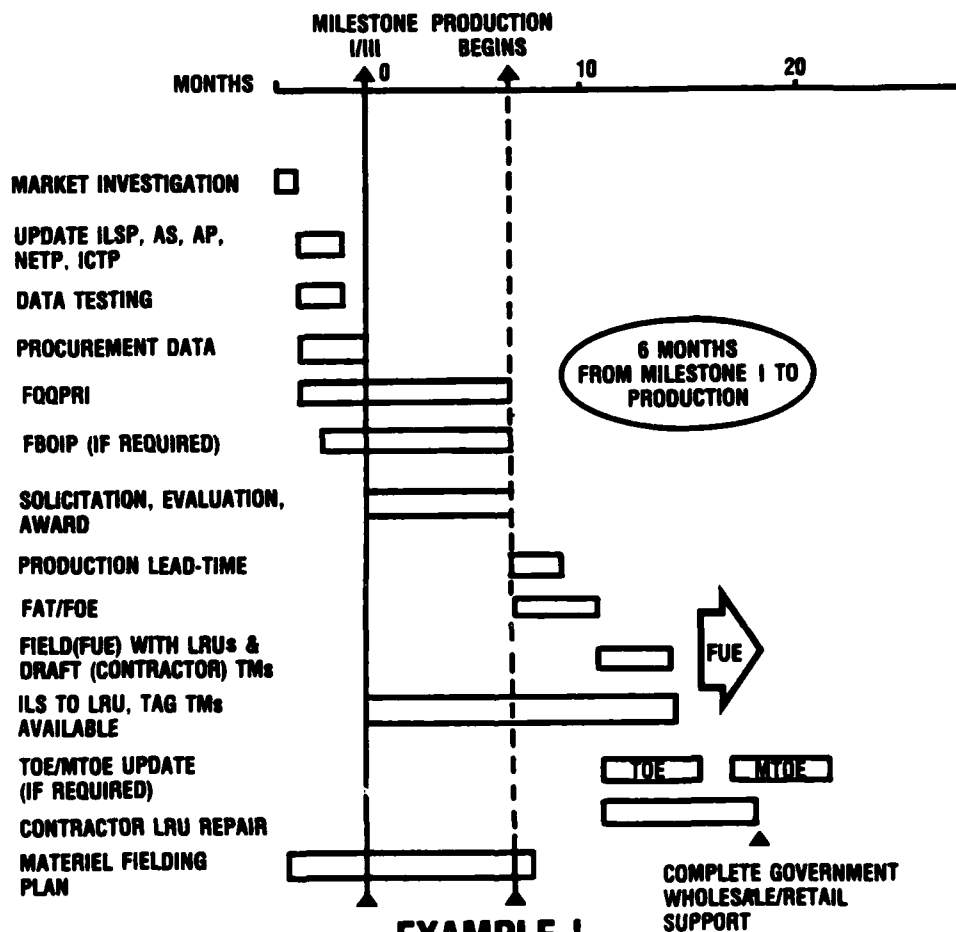
(1) First Article Testing conducted. Maximize use of contractor test data to meet FAT requirements.

(2) Product Quality Acceptance criteria specified.

(3) No quantitative RAM requirements. These systems are considered to be low risk procurement from a reliability viewpoint. As by definition, they meet or exceed industrial standards and are commercially acceptable.

(4) Appropriate PQM actions are accomplished in accordance with DARCOM-R 702-6 and DARCOM-P 702-13.

1. Safety and health data will be gathered during the Market Investigation and used in the decision process.



2. Example II NDI. This is a category B NDI (See para IA) which introduces a new capability. It satisfies an operational requirement stated in an approved requirements document. This category of commercial procurement consists of items that are produced in large quantities in the commercial market and are widely used by the public. These items are contemplated to be used in a different scenario or environment by the military than they are by the public. It is usually a single item, e.g., I/O device, computer, antenna, generator, cargo, and utility commercial vehicle. The following conditions apply to this example:

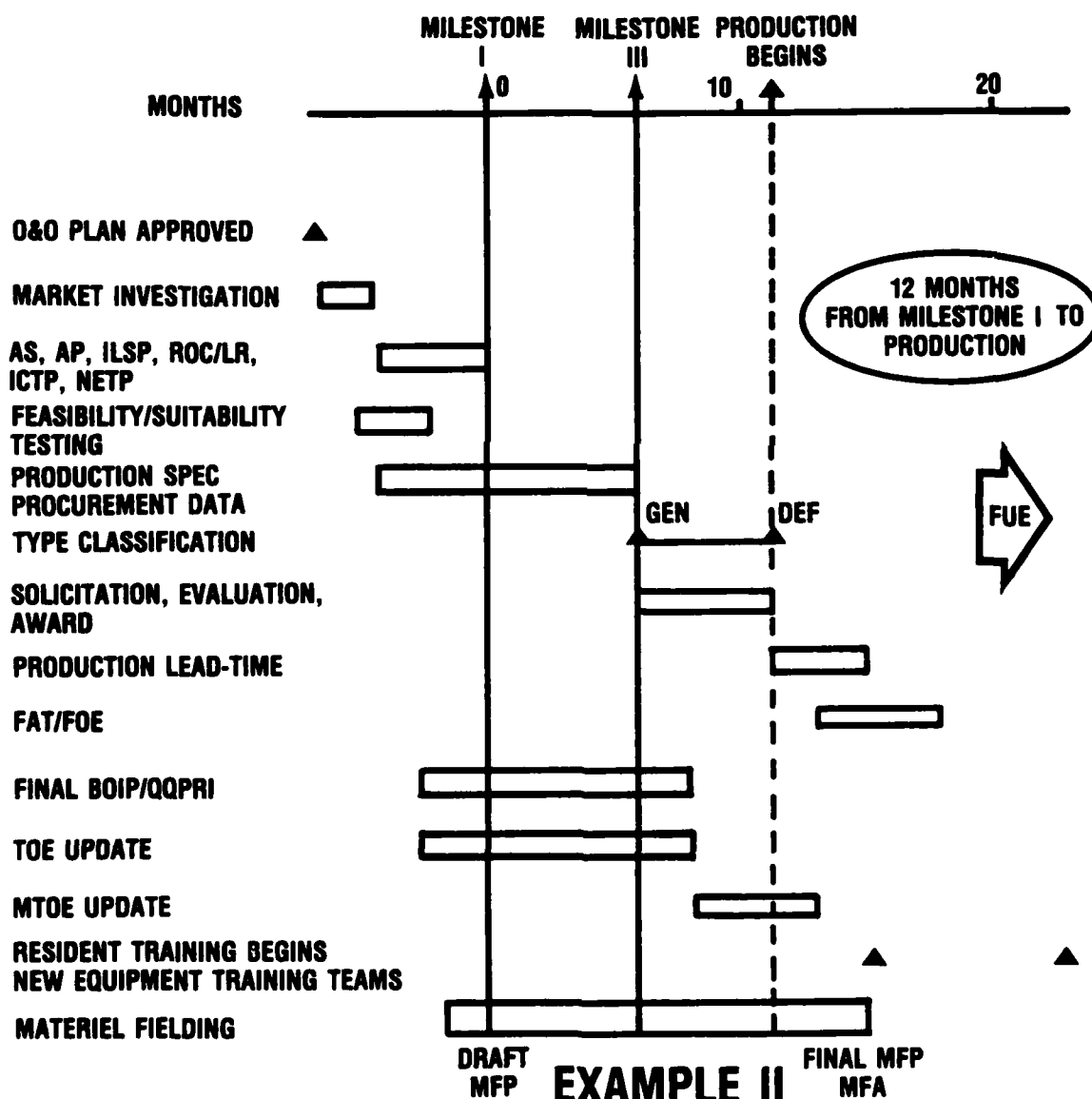
- a. The selection of NDI is in response to an operational requirement.
- b. BOIP/QQPRI are required and will follow expedited processing. Draft TOE (if required) will be produced concurrently with BOIP/QQPRI. MTOE will be produced by MACOM as assets are available.
- c. There will be minimum initial Government maintenance and supply support consisting of LRU replacement with contractor LRU repair.
- d. Commercial manuals will be accepted as draft TMs for initial fielding, followed by TAG manuals.
- e. Time from Milestone I to beginning of production is about 12 months.
- f. First Unit Equipped (FUE) in approximately 18 months, with transition to full Government support in 24 months.
- g. Development of ADP software for automated items is completed and verified as adequate prior to type classification of the hardware.
- h. Product Assurance requirements.
  - (1) No quantitative RAM requirements.
  - (2) Feasibility/Suitability tests are conducted to demonstrate the adaptability, inherent reliability and transportability of the items in the military environment.
  - (3) A procurement specification is prepared which incorporates changes required to upgrade specific components identified during the feasibility/suitability tests. Through a careful selection of the most reliable components, weaknesses are reduced. Environmental Stress Screening (ESS) at the card/module/systems level and qualification tests at the major component (black box level) are placed in the specification.
  - (4) Product Quality Acceptance criteria specified.
  - (5) First Article Testing specified and conducted.

(6) Follow-on Evaluation conducted.

(7) From the reliability standpoint, this is medium risk with a potential of minimizing the risk if the specifications are improved.

(8) Appropriate PQM actions are accomplished in accordance with DARCOM-R 702-6 and DARCOM-P 702-13.

i. Safety and health data will be gathered during the Market Investigation and evaluated. Safety and health verification will be addressed in First Article Test.



3. Example III NDI. This is a category C2 NDI (See para IA) which introduces a new capability in response to an operational requirement and is considered a Designated Acquisition Program. The program consists of items assembled from commercially available components for the specific purpose of military use and may require ADP software development and integration. Typical items are comprised of a suite of equipments, such as a computer system or a communication network.

The following conditions apply to this NDI:

a. A complete Market Investigation is required. Additional testing is needed only if essential data are otherwise not available. This testing should fill those gaps which have not been satisfied by the investigation or other data sources.

b. The system may be ADP software-driven and may require ADP software development and testing.

c. BOIP/QQPRI are required and will follow expedited processing. Draft TOE (if required) will be produced concurrently with BOIP/QQPRI. MTOE will be produced by MACOM as assets are available.

d. OTEA serves as the operational test and evaluation agency.

e. There will be minimum initial Government maintenance and supply support consisting of LRU replacement with contractor LRU repair.

f. Commercial manuals supplemented with repair parts lists, special tool lists, and maintenance allocation chart will be acceptable for initial fielding followed by TAG manuals.

g. Time from Milestone I until beginning of production is about 12 months.

h. Extended production lead time.

i. First Unit Equipped (FUE) in approximately 35 months after Milestone I, with transition to full Government support in 42 months.

j. Product Assurance Requirements

(1) A comprehensive reliability program considered to facilitate component selection and reliability management. Included are reliability objectives, testing, assessment, reliability growth, and acceptability based on the success rate demonstrated during the program.

(2) Component qualification, integration testing, and shake-down tests must be considered and conducted at appropriate times before commitments are made to procure a substantial number of items.



(3) Tests are to be conducted at the Environmental Stress Screening (ESS) levels that are expected during military use. ESS conducted at the card/module/system level.

(4) Product quality assurance provisions are specified.

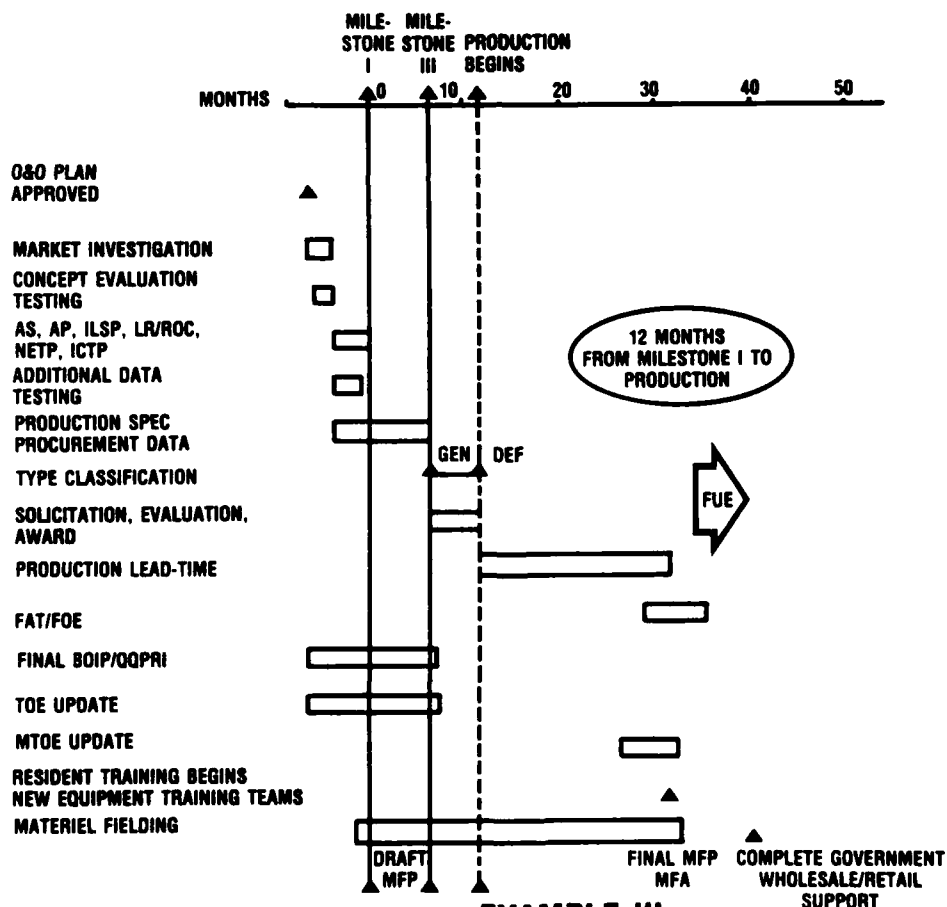
(5) First Article Testing/Follow-on Evaluation specified and conducted.

(6) Reliability requirements tailored for each integrated system.

(7) Appropriate Product Quality Management (PQM) actions are accomplished in accordance with DARCOM-R 702-6 and DARCOM-P 702-13.

k. The system must be fully evaluated to assure optimum safety requirements are met. This shall be accomplished through a safety assessment during the Market Investigation and any special safety verification requirements judged appropriate by the developer's safety office.

Note: The reliability program has to expect that the Initial Production Test (or run-off tests) will need to demonstrate a relatively high reliability growth achievement in order to meet the production requirements.



## GLOSSARY

### Abbreviations

ACP ----- Asset Capitalization Program  
ADP ----- automatic data processing  
AIF ----- Army Industrial Fund  
AMC ----- US Army Materiel Command  
ASIOE ----- associated support items of equipment  
ASL ----- authorized stockage list  
BITE ----- built-in test equipment  
BOI ----- basis of issue  
BOIP ----- Basis of Issue Plan  
BOIPFD --- BOIP Feeder Data  
CCSS ----- Commodity Command Standard Systems  
CTDR ----- Commercial Training Devices Requirement  
DAMPL ----- Department of the Army Master Planning List  
DCP ----- decision coordinating paper  
DEPSECDEF- Deputy Secretary of Defense  
DOD ----- Department of Defense  
DMWR ----- depot maintenance work requirement  
DS ----- direct support  
DT ----- development testing  
DTS ----- Defense Transportation System  
ECA ----- early comparability analysis  
EMP ----- electromagnetic pulse  
ESS ----- environmental stress screening  
FAR ----- Federal Acquisition Regulations  
FAT ----- First Article Test  
FUE ----- first unit equipped  
FUED ----- FUE date  
FY ----- fiscal year  
GOCO ----- Government-owned, contractor-operated  
GS ----- general support  
HARDMAN -- hardware and manpower (methodology)  
HEL ----- Human Engineering Laboratory  
HFEA ----- human factors engineering analysis  
IEP ----- Independent Evaluation Plan  
IER ----- Independent Evaluation Report  
IFB ----- Invitation for bid  
ILS ----- integrated logistic support  
ILSP ----- ILS Plan  
I/O ----- input/output  
IPR ----- in-process review  
IR&D ----- independent research and development  
LCC ----- life-cycle cost  
LIN ----- line item number  
LR ----- Letter Requirement  
LRU ----- line replaceable unit  
LSA ----- logistic support analysis  
LSAR ----- LSA record

MACI ----- military adaptation of commercial items  
 MACOM ----- major Army command  
 MANPRINT - manpower and personnel integration  
 MFA ----- Materiel Fielding Agreement  
 MFL ----- Materiel Fielding Letter  
 MFP ----- Materiel Fielding Plan  
 MOS ----- military occupational specialty  
 MPT ----- manpower - personnel - training  
 MTMC ----- Military Traffic Management Center  
 MTOE ----- modified table of organization and equipment  
 NBC ----- nuclear, biological, and chemical  
 NDI ----- nondevelopment item  
 NSN ----- National stock number  
 OMA ----- Operations and Maintenance, Army  
 O&O ----- Operational and Organizational (Plan)  
 OT ----- operational testing  
 OTEA ----- US Army Operational Test and Evaluation Agency  
 PA ----- procurement appropriation  
 PBS ----- production base support  
 PE ----- production engineering  
 PIF ----- provisions of industrial facilities  
 PIP ----- Product Improvement Proposal  
 PL ----- Public Law  
 PLL ----- prescribed load list  
 PMR ----- provisioning master record  
 PPBES ----- Planning, Programing, Budgeting, and Execution System  
 P I ----- Preplanned Product Improvement  
 PQM ----- Product Quality Management (Plan)  
 QQPRI ----- qualitative and quantitative personnel requirements information  
 RAM ----- reliability, availability, and maintainability  
 R&D ----- research and development  
 RDTE ----- research, development, test, and evaluation  
 RFP ----- Request for Proposal  
 RFQ ----- Request for Quotation  
 R&M ----- reliability and maintainability  
 ROC ----- required operational capability  
 SCP ----- System Concept Paper  
 TAG ----- The Adjutant General  
 TAGO ----- The Adjutant General's Office  
 TC ----- type classification  
 TDLR ----- Training Device Letter Requirement  
 TDR ----- Training Device Requirement  
 TDY ----- temporary duty  
 T&E ----- test and evaluation  
 TEMP ----- Test and Evaluation Master Plan  
 TIWG ----- Test Integration Working Group  
 TM ----- training manual  
 TMDE ----- test, measurement, and diagnostic equipment  
 TOE ----- table of organization and equipment  
 TRADOC --- US Army Training and Doctrine Command

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